

RT-PCR Products from Mouse and Human Breast Tumor Cells

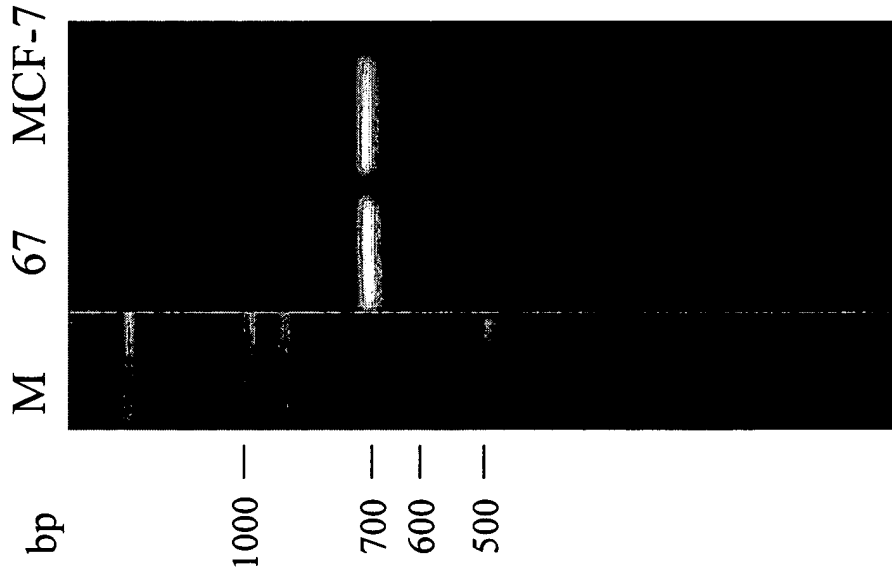


FIG. 1

Human Sigma-1 β Receptor mRNA Sequence (cd Region) GenBank: AF226604

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1  ATG CAG TGG GCG GCG GTG GCG GTG GCG GCG GTG CTT CGT GCG AGCG 60
   M  Q  W  A  V  G  R  R  W  A  W  A  A  L  L  A  V  A  A
61  GTG CTG ACC CAG GTC GTCTGGCTCTGGCTGGGTACG CAG AGCTTCGTCTCCAGCGCGAA 120
   V  L  T  Q  V  V  W  L  W  L  G  T  Q  S  F  V  F  Q  R  E
121  GAG ATAGCGCAGTTGGCGGCGCAGTACGCTGGGTGGACCA CAGAGCTGGCCTTCTCTCGT 180
   E  I  A  Q  L  A  R  Q  Y  A  G  L  D  H  E  L  A  F  S  R
181  CTG ATCGTGGAGCTGGCGGCGGTGCACCCAGGCCACGCTG TCCCGACGAGAGTGCAG 240
   L  I  V  E  L  R  R  L  H  P  G  H  V  L  P  D  E  E  L  Q
241  TGG GTGTTTCGTGAATGCGGGTGGCTGGATGGGCGGCCA TGTGCCTTCTGCACGCCCTCGCTG 300
   W  V  F  V  N  A  G  G  W  M  G  A  M  C  L  L  H  A  S  L
301  TCC GAGTATGTGCTCTTCGGCACCGCCTTGGGCTCCCGG CCGCACTCGGGGAGACG 360
   S  E  Y  V  L  L  F  G  T  A  L  G  S  R  G  H  S  G  E  T
361  GTAGTACACGGGCCTGTGAGGCAACAGCTGTGGAGTGGG GGGCCAAACATGGATGGTG 420
   V  V  H  G  P  G  E  A  T  A  V  E  W  G  P  N  T  W  M  V
421  GAGTACGGCGGGCGTCA TCCCATCCACCTTGGCCTTCGCGCTGGCCGACACTGTCTTC 480
   E  Y  G  R  G  V  I  P  S  T  L  A  F  A  L  A  D  T  V  F
481  AGCACCCAGGACTTCCTCACCCCTCTTCTATACTCTTCG TCTCCTATGCTCGGGGCTCCGG 540
   S  T  Q  D  F  L  T  L  F  Y  T  L  R  S  Y  A  R  G  L  R
541  CTTGAGCTCACCACTACCTCTTTGGCCAGGACCCCTTGA 579
   L  E  L  T  T  Y  L  F  G  Q  D  P  *

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FIG. 2

Comparison of The Human Sigma-1 and Sigma-1β Receptor Protein Sequences

| | | |
|-----|--|---|
| 1 | MQWAVGRRWAWAALLLAVAAVLTQVVWLWLGTQSFVFQREEIAQLARQYA | 50 |
| 1 | MQWAVGRRWAWAALLLAVAAVLTQVVWLWLGTQSFVFQREEIAQLARQYA | 50 |
| 51 | GLDHELAFSRLIVELRRLHPGHVLPDEELQWVFVNAGGWMGAMCLLHASL | 100 |
| 51 | GLDHELAFSRLIVELRRLHPGHVLPDEELQWVFVNAGGWMGAMCLLHASL | 100 |
| 101 | SEYVLLFGTALGSRGHSGRYWAEISDTIISGTFHQWREGTTKSEVFYPGE | 150 |
| 101 | <u>SEYVLLFGTALGSRGHS (117)</u> [31 AA were deleted] GE | 119 |
| 151 | TVVHGPGEATAVEWGPNTWMVEYGRGVIPSTLAFALADTVFSTQDFLTLE | 200 |
| 120 | TVVHGPGEATAVEWGPNTWMVEYGRGVIPSTLAFALADTVFSTQDFLTLE | 169 |
| 201 | YTLRSYARGRLRLTTLTYLFGQDP | 223 AA human σ ₁ receptor protein |
| 170 | YTLRSYARGRLRLTTLTYLFGQDP | 192 AA human σ_{1β} receptor protein |

FIG. 3

Mouse Sigma-1 β Receptor mRNA Sequence (cd Region)

GeneBank: AF226605

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1  ATGCCGTGGCGCGGACGGGGTGGGCATGGATCACCCCTGATTCGACTATTATCGCA 60
   M P W A A G R R W A W I T L I L T I I A
61  GTGCTGATCCAGGCGCCTGGTTGTGGCTGGGCACTCAAAACTTCGTCTCTAGAGAA 120
   V L I Q A A W L W L G T Q N F V F S R E
121  GAAATAGCGCAGCTTGCTCGACAGTATCGGGGCTGGACCATGAGCTTGCCCTCTCGG 180
   E I A Q L A R Q Y A G L D H E L A F S R
181  CTGATCGTGGAGCTGCGGAGGCTGCACCCAGCCACGCTGCTCCGGATGAGGAGTGCAG 240
   L I V E L R R L H P G H V L P D E E L Q
241  TGGGTATTTGTGAACGGGGGGGCTGGATGGGGCCCATGTGTATTCTGCACGCCCTCGCTG 300
   W V F V N A G G W M G A M C I L H A S L
301  TCTGAGTACGTGCTCTTCGGCACCGCCCTGGGCTCCCATGGCCATTCGGGAGAGACA 360
   S E Y V L L F G T A L G S H G H S G E T
361  GTTGACACGGGCGCTGGAGAAGCAACGGCTCTGGAGTGGGGACCAACACGTTGGATGGT 420
   V V H G P G E A T A L E W G P N T W M V
421  GAGTACGGCGGGGTGTTATTCGGTCTACCCCTGTTCTTTGCACCTAGCCGACCCCTTCTC 480
   E Y G R G V I P S T L F F A L A D T F F
481  GGCACCCAGGACTACCTCACACTCTTCTATACCCCTTCGGGCCTATGCCGGGCGCTCCGG 540
   G T Q D Y L T L F Y T L R A Y A R G L R
541  CTTGAGCTTACCACCTACCTCTTTGGCCAAAGACTCCTGA 579
   L E L T T Y L F G Q D S *

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FIG. 4

Comparison of The Mouse Sigma-1 and Sigma-1 β Receptor Protein Sequences

| | | |
|-----|---|------------|
| 1 | MPWAAGRRWAWITLILTIIAVLIQAAWLWLGTONFVFSRREEIAQLARQYA | 50 |
| 1 | MPWAAGRRWAWITLILTIIAVLIQAAWLWLGTONFVFSRREEIAQLARQYA | 50 |
| 51 | GLDHELAFSRLIIVELRRLHPGHVLPDEELQWVFVNAGGWMGAMCILLHASL | 100 |
| 51 | GLDHELAFSRLIIVELRRLHPGHVLPDEELQWVFVNAGGWMGAMCILLHASL | 100 |
| 101 | SEYVLLFGTALGSHGSHGRYWAEISDTIISGTFHQWKEGTTKSEVFYPGE | 150 |
| 101 | <u>SEYVLLFGTALGSHGS</u> (117) [31 AA were deleted] GE | 119 |
| 151 | TVVHGPGEATALEWGNPTWMVEYGRGVIPSTLFFALADTFFGTQDYLTIF | 200 |
| 120 | TVVHGPGEATALEWGNPTWMVEYGRGVIPSTLFFALADTFFGTQDYLTIF | 169 |
| 201 | YTLRAYARGRLRLLELTLYLFGQDS* 223 AA σ_1 receptor protein | |
| 170 | YTLRAYARGRLRLLELTLYLFGQDS* 192 AA $\sigma_{1\beta}$ receptor protein | |

FIG. 5

TOOEE0-690E2860

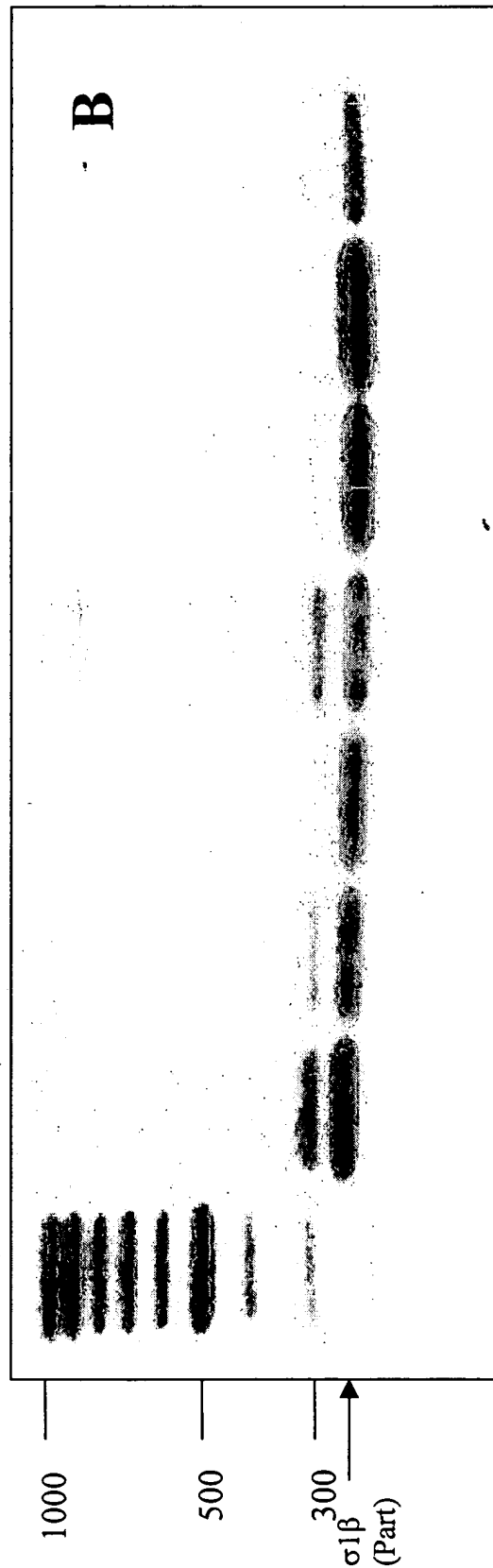
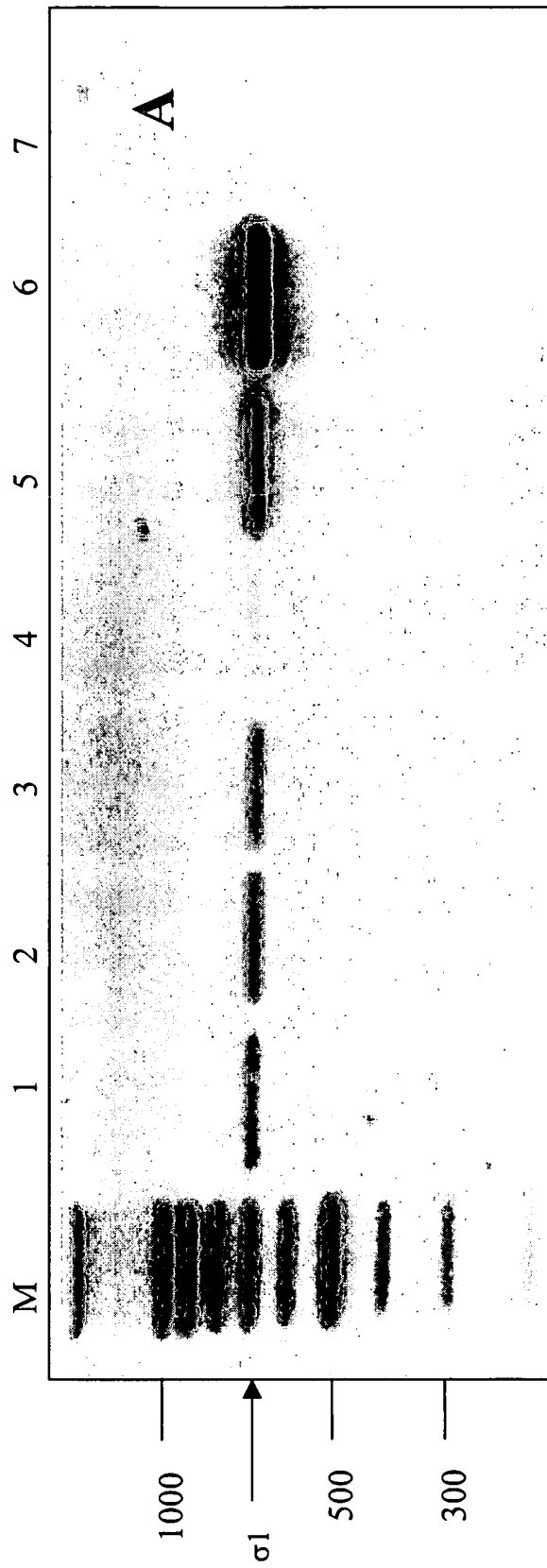


FIG. 6

Sigma-1 Receptor Gene



Sigma-1 Receptor mRNA

Human Sigma-1 β Receptor mRNA

Mouse Sigma-1 β Receptor mRNA

FIG. 7